

REMARKS

In the Office Action dated February 21, 2007, February 21, 2007, claims 1-4, 6-13, 16 and 17 were rejected under 35 U.S.C. §102(b) as being anticipated by Foley et al. Claims 5, 14 and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Foley et al. in view of Kienzle, III et al., Suhm, or Simon et al.

Applicants note with appreciation the interview courteously afforded the undersigned representative of the Applicants on April 17, 2007, at which the Examiner's supervisor also was present. The rejection based on Foley et al. was discussed at the interview, and the above claim amendments were proposed and discussed at the interview.

It was agreed at the interview that making these changes would not raise a new issue and that these changes would distinguish the claims over the teachings of Foley et al. As noted at the interview, the Examiner must still make an updated search of the art upon receipt of Applicants' After Final response.

As discussed at the interview, the procedure described in the Foley et al. reference is the type of procedure that the medical apparatus and method disclosed and claimed in the present application are intended to avoid. In the Foley et al. reference, internal body parts, which may be bone fragments, must be identified and monitored before and during a surgical procedure, in order to localize their location within the body in a visual display. The Foley et al. reference also recognizes that these identified bone fragments may move during the course of the interventional procedure, and this movement must be tracked and the visual display must be updated or modified. As stated at column 5, lines 51-52 of the Foley et al. reference, however, this modification is performed by identifying the location of each reference

point of each skeletal element in procedure space. The localizer 108 then identifies the location and provides this information to the pre-procedural data, so that this data can be deformed or repositioned into a displaced dataset, representing the aforementioned movement.

The necessity of identifying and tracking reference points of the bone fragment itself is avoided in accordance with the present invention by making use of an image dataset of the body of the subject containing a bone fragment, and subjecting that image dataset to a segmentation procedure that produces a segmented visualization of the bone fragment in the image on the display. As discussed at the interview, the terms "segmenting" and "segmentation procedure" identify a well-known type of procedure that is commonly employed in data processing, and this is the manner by which those terms are used in the present claims. This allows the segmented visualization of the bone fragment to be moved within the displayed image relative to other parts of the image.

The present inventors have then had the insight to realize that once the segmented visualization of the bone fragment is displayed, it is not necessary for the bone fragment itself to be tracked during the procedure, since the procedure already involves the use of an instrument that will be tracked using a navigation system. Since the instrument is being used to move the bone fragment, and will actually be in contact therewith, or at least in a known positional or spatial relationship thereto, it is sufficient to use this already-available navigation information for the instrument in order to cause the segmented visualization of the bone fragment to move on the display in conformity with the movement of the instrument.

In other words, the position information for the instrument, that is obtained from the navigation system, is used by the data processor to directly determine a modified position of the bone fragment, that results from the manipulation of the instrument, and this modified position information of the bone fragment is then used to cause the segmented visualization of the bone fragment to be positioned on the display in conformity therewith.

The Examiner noted that the Foley et al. reference, at column 7, lines 8-17, mentions that, if an instrument is used during the procedure, the movement of the instrument can be indicated on the display as well, such as by positioning a cursor. There is no language in this passage in Foley et al., however, nor in any other passage in Foley et al., that discloses or suggests that this information regarding the instrument position plays any role whatsoever in identifying or displaying the position of the bone fragment. As noted above, the disclosure as to how the position of the bone fragment is achieved in the Foley et al. reference is exclusively on the basis of the aforementioned reference points of the bone fragments themselves.

This is also made clear in the language of the aforementioned passage itself, which clearly states that the position of the instrument is "in addition" to the displayed information concerning the skeletal elements.

Moreover, as noted at the interview, there is no mention whatsoever of the instrument at all in any of the claims of the Foley et al. reference. If the instrument played any part in determining the position and display of the bone fragments, it would be essential to at least include some type of mention of the instrument in the Foley et al. claims. The absence of any mention whatsoever of the instrument in the claims of the Foley et al. reference is further evidence that the position data

representing the instrument is not used in any manner to identify the position of the skeletal elements.


Each of independent claims 1 and 8 has accordingly been modified in accordance with these agreements reached at the interview. For the above reasons, therefore, Applicants submit that none of claims 1-4, 6-13, 16 or 17 is anticipated by Foley et al.

As to the rejection of claims 5, 14 and 15, even if the Examiner's statements regarding the teachings of Kienzle, III et al., Suhm and Simon et al. are correct, modifying the Foley et al. reference still would not result in an apparatus or method conforming to any of claims 5, 14 or 15, in view of the aforementioned differences between the subject matter of the independent claims (from which those claims respectively depend) and the disclosure of Foley et al.

As agreed at the interview, this Amendment does not raise new issues requiring further searching or consideration and therefore, assuming that the updated prior art search does not result in new prior art being located, Applicants submit the present Amendment places the application in condition for allowance. Entry of the Amendment is therefore proper after the Final Rejection, and the same is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required, or to credit any overpayment to account No. 501519.

Submitted by,



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